Fostering sharing with trust

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Abstract
As sharing heavily relies on trust, in this position paper we advocate for the use of a socio-technical model of trust to inform the design of sharing services. We start by presenting the model and then moving on to establish the relationship between sharing and trust. We then deconstruct a sharing service proposal illustrating potential trust breakdowns. Finally, in an example, we illustrate how the socio-technical model of trust could be used to inform the (re)design of the selected service.

Author Keywords
Human-computer trust; Socio-technical model of trust; Sustainability; Designing for Sharing

ACM Classification Keywords
H.5.3. [Group and Organization Interfaces]: Design, Reliability, Human Factors.

The socio-technical model of trust
The proposed model, which we advocate to be used as a design tool for informing the design of sharing services, depicts trust as a construct informed by 7 (seven) individual qualities. The model determines the extent to which one relates with one's social and technical environment [35, 36]. This model, see figure 1, is based on the combination of the unification of Davis's and

Venkatesh's Technology Acceptance Models [14], along with an extensive literature review on trust [8], and was complemented with participatory design sessions [9]. The resulting model (after validation) takes into consideration certain observable qualities of trust that help determine a user's intention of trust (Motivation and Willingness); incentive user's usage behaviour (Competency and Predictability); and supports and moderates the relationships (Benevolence, Reciprocity and Honesty)[10, 11].
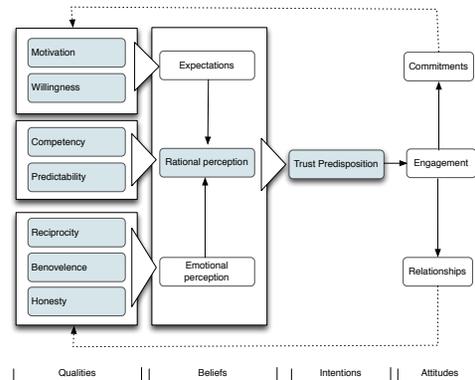

Fig.1. A socio-technical model of trust

The individual qualities of trust are: **Willingness** reflects the positive or negative feeling about performing a given action while considering the risk and incentives. **Competency** reflects the degree of ease of use, when associated with the use of the system. **Predictability** represents the user's confidence that the system will help him perform a desired action in accordance with what is expected. **Benevolence** reflects the user's perception that most people share similar social behaviours and sharing values. **Reciprocity** represents the degree to which an individual sees oneself as part of a group. **Honesty** reflects an insurance quality when facing apprehension, or

even fear with the possibility of being deceived.

The relation between sharing and trust

Sharing is a social process that occurs between two or more persons who enjoy the benefit (or cost) of sharing a value, a good, time or skill [4]. Sharing differs from a economical transaction process as it avoids feelings of commitment, rather its it success lies in promoting it. This sharing economy, sometimes referred to as "collaborative economy" arises from newly built community notions of ownership and relationship. These usually represent a network and reflect a variety of sharing forms like creation, production, distribution, trade and consumption of goods and services. This model of collaborative consumption enables participants to share and access products or services, rather than having individual ownership. With it emerged a new market service that used the new language of sharing, collaboration and peer-to-peer exchange for positioning sharing and collaboration and bridges the capacity to act in those new collaborative economies. Social capital is one such concept addressed, which can be roughly translated as the ability to "facilitate of actions" in society. Social capital emerges with people, whenever forming their social connections and networks. It is based on the principles of trust, mutual reciprocity and norms of action [13, 3]. Take for instance services like VGI **Crowdsourcing** geodata. Its success lies on peer-to-peer volunteer contributions, and it increases through the system's ability to incentive user's contribution. Thus concepts like willingness, trust and credibility need to be addressed [1]. Take for instance also **carpooling** services where, in a study, they report trust as the main problem behind its potential popularity [2, 6]. Or even examine another study which reports a significant relationship between the user's trust and their attitudes towards sharing in open spaces in

education settings [7, 5]. This indicates that, despite the majority of participants showing positive attitudes towards sharing and participating in open spaces, they also showed some trust concerns. For instance, the most appreciated trust qualities to share or relate online are: honesty, the need/will to share, affinity and respect [12]. Above examples, besides establish a direct link between sharing and trust also, indicate the need for providing new models and visions where trust plays an important role in encouraging sharing interactions. Thus our argument is for the use of a socio-technical model of trust to inform the design of sharing services, contributing a way for promoting successful sustainable and self-regulated sharing practices.

Case study on sustainable sharing services

We take as a case study the sharing service called "*BiB*", this service was designed by HCI master level students for a sustainability course taught at Tallinn University, Estonia. This mobile tool's main aim is to facilitate sustainable sharing practices and promoting community synergy in society. To examine the service we used a trust-enabling design analytical tool derived from the model [10, 11]. The main aim of this tool was to assess and inform to what extent the proposed tool features can explain or describe trust-enabling interactions. As a result of that analysis, we found that the proposed service presented very few design features which encouraged meaningful trust-enabling interactions. For instance, the design proposed few incentives for leverage user's will to consider the risk of using "*BiB*" to exchange gadgets.

In their proposal we also failed to see community enabled features that encourage the trust value in sharing. This leads us to argue that in spite of today's collaborative economy we can see successful services that encourage interactions through trust, like neighborgoods, justshareit or airbnb. Those trust values, usually, are fostered intuitively and are not intentionally designed based on trust design frameworks. We propose to (re)design "*BiB*" service by, for example, providing clear motivation hints on why to choose the tool and what user's gain by using it. Also, it should enable incentive for trial and service exploration to trigger the **willingness** to trust. Regarding **competency** qualities, this is somehow shown through "*BiB*" aesthetics and ease of use. But it can be improved, if the designer were to provide, for example, information/examples on usage practices, or sharing guidelines. Again, "*BiB*" coherent design can be improved and ensure more **predictability** if complemented with user support sharing mechanisms like support forums and help guidelines. No **benevolent** design related qualities were found herein, they mention although wishing for a "forgiveness" feature. We advise them as well to provide caring, kindness/goodwill mechanisms through emotion "buttons". Regarding **reciprocity**, they propose to provide feedback through a recommender system, whhich in our opinion is not enough. Perhaps, they could encourage people to testify on others or on the tool behalf. They should create as well small support group communities with similar interests and enabling friend (or friend of a friend) recommendations. **Honesty** hints are missing, they created a feature called "*circle of trust*" but only for listing contacts. They should also add to that feature user's cues on what the service does to prevent the possibility for deception. We suggest to complement this feature by defining clear rules and responsibility mechanisms that ensure expulsion to those who do not follow the rules, and by creating warning and advice lists. They should provide as well tool usage general statistics.

Closing remarks

In this position paper we expressed our arguments on the need for the use of a socio-technical model of trust to inform the design of sharing services. Otherwise, those services instead of being a services which facilitate sharing, can instead more alienation than connection.

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